Project Initialization and Planning Phase

Date	16 September 2024
Team ID	SWTID1726888137
Project Title	Intelligent Handwritten Digit Identification System for Computer Applications
Maximum Marks	3 Marks

Project Proposal (Proposed Solution)

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	Develop an intelligent system that accurately identifies handwritten digits (0-9) using machine learning, suitable for applications in banking, postal services, and automated data entry.
Scope	This project will focus on creating a deep learning model to recognize handwritten digits, validate its accuracy, and integrate it into a user-friendly application.
Problem Statement	
Description	Traditional OCR systems struggle with handwritten digits due to handwriting variations, leading to errors and increased manual work.
Impact	Solving this problem enables faster, more accurate data processing in sectors that rely on handwritten data, reducing human intervention and operational costs.
Proposed Solution	
Approach	A Convolutional Neural Network (CNN) will be trained on handwritten digit images, using preprocessing and optimization techniques to handle diverse handwriting styles.
Key Features	The solution is designed for real-time performance, high accuracy, and easy integration into applications, making it scalable and adaptable for broader use cases.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	e.g., CPU: Intel Core i5 or AMD Ryzen 5 (or higher) GPU: NVIDIA GTX 1660 or higher
Memory	RAM specifications	e.g., Min. 8 GB
Storage	Disk space for data, models, and logs	e.g., Min. 20GB
Software		
Frameworks	Python frameworks	e.g., tensorflow
Libraries	Additional libraries	e.g., keras, matplotlib, panda, numpy, os, cv2, tkinter, PIL,
Development Environment	IDE, version control	e.g., Jupyter Notebook, Git
Data		
Data	Source, size, format	e.g., MNIST dataset